IN THE CLAIMS

Claim 1 (Original) A processing apparatus including a processing vessel, a mount table arranged in the processing vessel to allow a process object to be placed thereon, and a shower head structure arranged at a ceiling portion of the processing vessel to supply a process gas into an interior of the processing vessel,

wherein the shower head structure includes:

a shower head main body having a generally cup shape, the shower head main body having a bottom wall provided with a plurality of gas injection holes formed therein and a side wall rising from a peripheral portion of the bottom wall;

a head mounting frame arranged at the ceiling portion of the processing vessel to support the shower head main body, the head mounting frame having at least one through-hole into which an upper portion of the side wall of the shower head main body is inserted;

a cooling mechanism attached to an upper end portion of the side wall of the shower head main body inserted into the through-hole of the head mounting frame and exposed to an exterior of the processing vessel;

screw bolts extending from the lower surface of the bottom wall of the shower head main body through the bottom wall of the shower head main body, and being in thread engagement with the head mounting frame; and

at least one diffusion chamber forming plate housed in the shower head main body and joined to the head mounting frame, and defining a gas diffusion chamber which is supplied with the process gas and is communicated with the gas injection holes.

Claim 2 (Original) The processing apparatus according to claim 1, wherein the head mounting frame is fixed to the processing vessel via a hinge while allowing pivotal movement of the head mounting frame with respect to the processing vessel, so that the head mounting frame can be separated from the processing vessel.

Claim 3 (Original) The processing apparatus according to claim 1, wherein the head mounting frame has, as said at least one through-hole, a plurality of through-holes, the upper

portion of the side wall of the shower head main body is inserted into the plurality of through-holes, and the through-holes are arranged at angular intervals in a circumferential direction.

Claim 4 (Original) The processing apparatus according to claim 1, wherein the shower head structure includes, as said at least one diffusion chamber forming plate, a plurality of diffusion chamber forming plate, which are stacked in layers in the shower head main body.

Claim 5 (Original) The processing apparatus according to claim 1, wherein the cooling mechanism includes a Peltier device and a cooling jacket allowing a coolant to flow therethrough.

Claim 6 (Currently Amended) A processing apparatus including a processing vessel, a mount table arranged in the processing vessel to allow a process object to be placed thereon, and a shower head structure arranged at a ceiling portion of the processing vessel to supply a process gas into an interior of the processing vessel,

wherein the shower head structure includes:

a shower head main body having a generally cup shape, the shower head main body having a bottom wall provided with a plurality of gas injection holes formed therein and a side wall rising from a peripheral portion of the bottom wall;

a head mounting frame arranged at the ceiling portion of the processing vessel to support the shower head main body, the head mounting frame having at least one through-hole into which an upper portion of the side wall of the shower head main body is inserted, wherein the shower head main body is attached to the head mounting frame such that ~~an~~ the upper portion of the side wall of the shower head main body is exposed to an exterior of the processing vessel; and

~~a cooling mechanism attached to an upper end portion of the side wall of the shower head main body exposed to an exterior of the processing vessel; and~~

at least one diffusion chamber forming plate housed in the shower head main body and defining a gas diffusion chamber which is supplied with the process gas and is communicated with the gas injection holes.